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Remarks

Originally presented claims 1-50 are canceled without prejudice in favor of new claims 1-111 presented herein, the consideration of which is respectfully requested. No additional matter has been introduced in the formulation of the new claims, and support for each claim is now detailed below.

Independent apparatus claim 1 recites a signal distribution system in which a crosspoint switch and a plurality of band translation devices are operable to provide any channel within a plurality of signals provided thereto to an output device (e.g., a television) coupled to any of the band translation devices. Exemplary architectures of the signal distribution system is shown in Figs. 1, 2 and 15. Examples of the recited output devices (e.g., television receivers) are shown in Fig. 16 and described in the specification, for example, in paragraphs 228-233. The feature that the input signals include overlapping channels is shown in Fig. 22 and described in paragraphs 25, 80, 213, 319, 321, 324. The feature that the crosspoint switch includes multiple outputs is shown in Figs. 1-3 and 15.

Dependent claims 2-36 recite additional features illustrated and described in the specification. Claim 2 includes the feature that channels are frequency division multiplexed onto the signal, as described in paragraphs 56, 57 and 62. Claim 3 recites the feature that one or more signal channels may be multiplexed, and claim 4 recites that such multiplexing may be digital, as discussed in paragraph 56 and 62. Claim 5 recites the feature that at least one of the N signals includes a plurality of frequency bands as described in paragraphs 63-65. Claim 6 recites an integrated circuit implementation, as described in paragraph 24.

Claim 7 describes an embodiment of the invention in which two or more band translation devices are coupled to the same local oscillator source. This embodiment is shown in Figs. 5, 8A and 8B, and described in paragraphs of 115, and 129-131. Claim 8 is directed to an alternative embodiment in which two or more band translation

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devices are coupled to different variable local oscillators, as described in paragraphs 167-168, 190, 194. Claim 9 recites an embodiment of the invention in which one output device (e.g. a television via a set top box) is coupled to the output of one band translation device. This architecture is presented in paragraph 70 in which it is stated: "an output of the band translation device represents an output of the band translation section," and from Fig. 1, where it is shown that a single output device (a television set) is coupled to the band translation output. Further support of this embodiment is described in paragraph 78. Claim 10 recites an embodiment presented in paragraphs 83-84 and 94, in which the outputs of two or more band translation devices are coupled together. Claim 11 recites an embodiment of the invention in which the combined output of two or more band translation devices is coupled to one output device. Support for this embodiment is provided in paragraph 78. Claim 12 recites a still another embodiment of the invention in which the output of one band translation device is coupled to two or more output devices. Support for this embodiment is provided in paragraph 83, and in paragraph 78 which provides "each of the set top boxes 160a-160c can have one or more individually programmable outputs" and "more than one television receiver 170a-c can be connected to an output of a single set top box."

Claims 13 and 16-19 recite further details of the signal distribution architecture in which the signal combiner and filters are described. Support for inclusion of these features is provided in Figs. 2 and 15, and provided in the specification in paragraphs 106, 210, 212, and 331. Claims 14 and 15 are directed to the bus structures for routing the received channels to the one or more output devices. Claim 14 recites a single bus structure, in an exemplary form of a signal combiner described in paragraph 83, the signal combiner operable to combine the band translation device output signals to a single output which is coupled to each of the output devices. Claim 15 recites an alternative embodiment of a multiple bus structure in which at least two signal combiners are used to route the band translation device outputs to the output devices. This embodiment is described in paragraphs 82, 92-94 and 96.

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Claims 20 – 24 recite additional features of the signal distribution system in which variable gain amplifiers are specified. Support for these features is found in Figs. 2-3, 9A-9C, 15, 19, and in the corresponding description and paragraphs 286-291. Claim 25 recites a further refinement of the signal distribution system in which a LNB converter is employed. This embodiment is shown in Fig. 1 and described in paragraphs 74-75.

Claim 26 recites a second crosspoint switch which is coupled either in series or parallel with the first crosspoint switch recited in claim 1, these implementations being illustrated in Figs. 2 and 19. Claims 27-31 are analogous to previously-described claims 6 and 9-12. Claim 32 recites an embodiment of the invention in which band translation output signals from different groups are combined. Support for this embodiment is found in paragraphs 74, 83-85 and 94. Claim 33 parallels claims 13, claim 34 follows claim 16, claim 35 follows claim 24, and claim 36 parallels claim 19.

Independent claim 37 recites a second embodiment of the signal distribution system having a crosspoint switch input and multiple band translation devices, whereby two or more band translation device outputs are coupled together. These features are illustrated in Figs. 2 and 15. Dependent claims 38-45 are analogous to dependent claims 2-9. Claim 46 parallels claim 25, claims 47-52 follow claims 11-16, claims 53-57 follow claims 20-24, claims 58-59 follow claims 26-27, claim 60 follows claim 30, and claims 61-66 parallel claims 31-36.

Independent method claim 67 recites exemplary operations of the signal distribution system in accordance with the present invention. The recited operations are illustrated in Figs. 1-2 and 15 and are described in the specification sections corresponding thereto. Dependent claim 68 recites the property that the crosspoint switch is the only crosspoint switch operable to provide the desired channel(s) to the output device to which it is coupled. The use of a singular crosspoint switch to route any signal to an output device coupled to that crosspoint switch is shown in Fig. 2.

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Claim 69 parallels claim 5, and claim 70 recites a further operation whereby one or more channels are grouped into a particular frequency band, and that band of channels "frequency translated" to the same frequency band. This operation, which, as known in the art can be accomplished by using a local oscillator operating at twice the RF frequency, is described in paragraph 71 of the specification. Claim 71 recites an embodiment of the invention in which the supplied signals are frequency translated to a different frequency band, as described, for example in paragraph 71. Claim 72 recites a further alternative embodiment in which the band of channels is passed through the band translation device without frequency translation. This process is illustrated in Figs. 3-8 and corresponding description. Claims 73-75 recite the operations of combining pass-through and/or frequency translated channels to form a composite signal. These processes are described, for example, in paragraphs 93, 330 and Fig. 22.

Claims 76 and 77 recites single and multiple bus structures, respectively, as previously described above in claims 14 and 15. Claim 78-80 and 82 recite further refinements of the invention whereby frequency translation operations are specified. These processes are described in the specification, for example in paragraphs 314-318 and Figs. 3-8, and 21-22. Claim 81 recites the operation of filtering the frequency-translated or pass-thru signal, a process which is illustrated, for example, in Figs. 15 and 22.

Claims 83-85 are directed to variably adjusting the signal level of signals propagating through the distribution system using variable gain amplifiers. As primarily illustrated in Figs. 17a-d and corresponding specification sections, the variable gain amplifiers are operable to apply gain and/or attenuation along the signal path at any location. Claim 86 recites the associated processes of coupling a series or parallel coupled crosspoint switch to the first crosspoint switch recited in base claim 67. The recited processes are analogous to those recited in claim 67, and find support in Figs. 2 and 19.

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Independent claim 87 recites a system for distributing satellite signals to one or more output devices, and includes the aforementioned features of a multiple output crosspoint switch, selection between input signals with overlapping channels, and coupled band translation device outputs. These features can be found as described above, for example, in Figs. 1, 2, 15, and 22. Dependent claims 88-95 follow claims 2-9, and claims 96-110 follow claims 11-25. Independent apparatus claim 111 is directed to an embodiment of the invention in which at least two LNB units are coupled along a bus structure (such as a signal combiner) to provide output channels to one or more output devices. This embodiment of the invention is presented in paragraph 83 of the specification.

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Conclusion

The Applicants submit that the presently pending claims 1-111 are patentable over the prior art and accordingly request the issuance of a Notice of Allowance. Should the Examiner believe that an interview would expedite prosecution of the case, a telephone call or e-mail to the Applicants' representative is invited indicating when a return call would be most convenient.

Respectfully submitted,



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